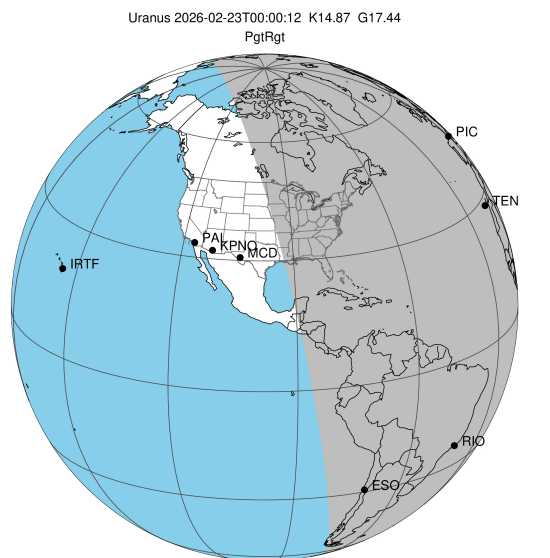


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-23T00:00:12.370
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561

ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s

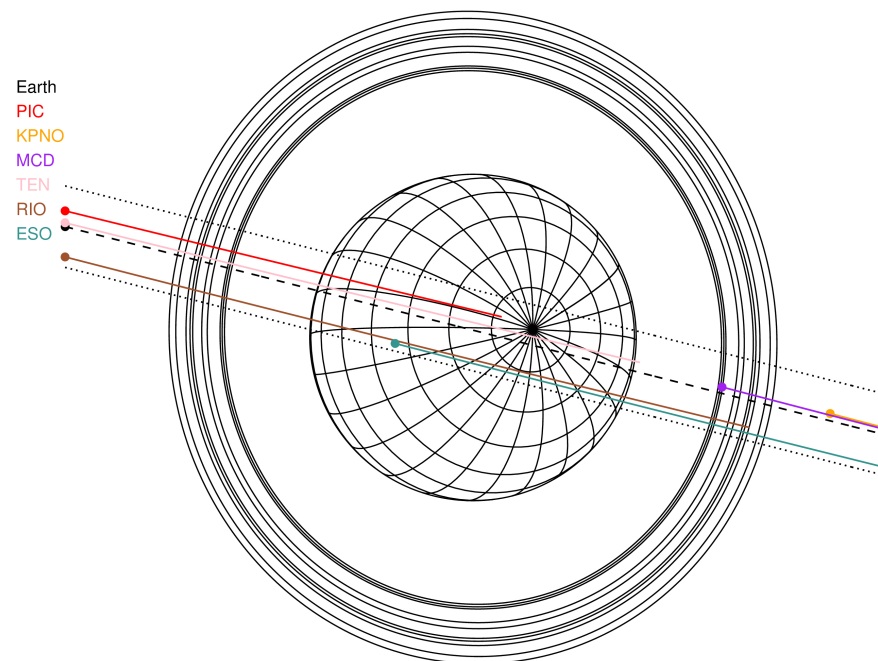
RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.572
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 14.14
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36

#	a(km)	ring
1	41837.2	6
2	42235.0	5
3	42571.2	4
4	44718.5	alpha
5	45661.1	beta
6	47176.1	eta
7	47626.3	gamma
8	48300.3	delta
9	50026.7	lambda
10	51149.4	epsilon



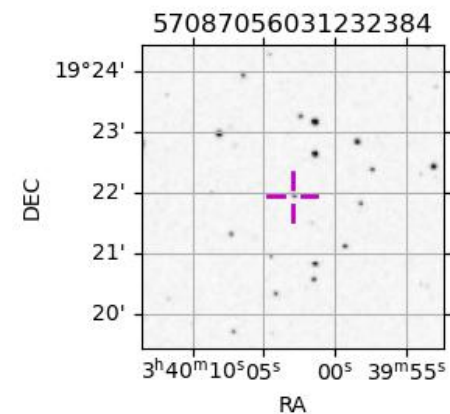
2026-02-23T00:00:12.3700 ra: 03 40 02.9676 s: +19 21 56.374 C/A 0.080° PA 165.77 deg v_sky + 9.86 km/s D 19.57 AU
 Credit: Styled after SORA/Lucky Star

Uranus 2026-02-23T00:00:12 K14.87 G17.44 PgtRgt

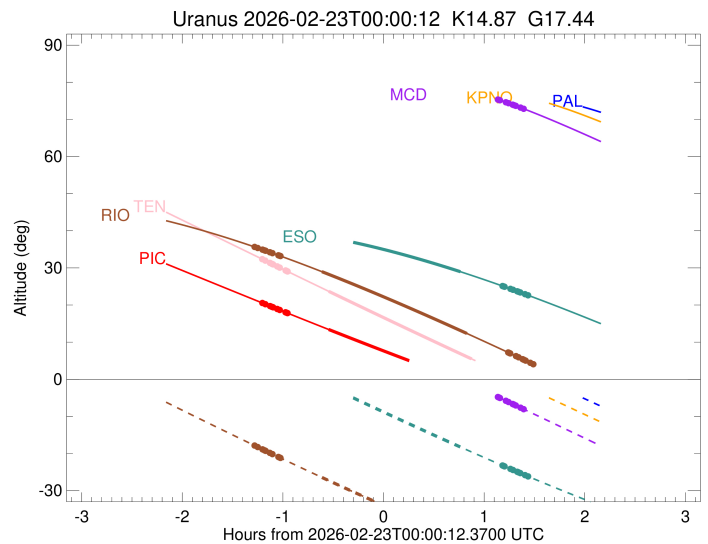
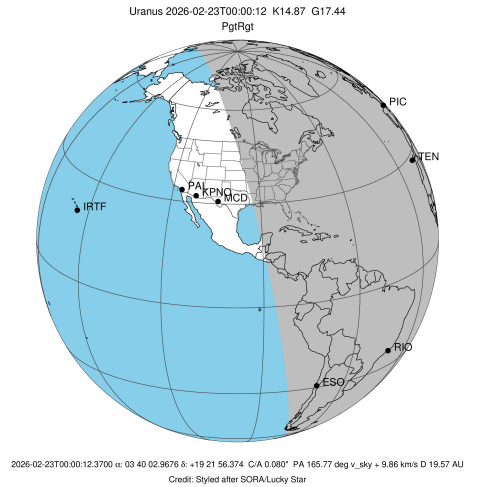


Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+++++++	+		FEB 22 22:48 - FEB 22 23:27	PinRin
PAL	Palomar Mt (200")	33.4	243.1					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
MCD	McDonald Obs. 2.7m	30.7	256.0			+++++++	FEB 23 01:09 - FEB 23 01:24	PnnRne
TEN	Teide Obs./Tenerife	28.3	343.5	+++++++	+ +		FEB 22 22:48 - FEB 23 00:52	PieRin
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+++++++	+ +	+++++++	FEB 22 22:43 - FEB 23 01:24	PieRie
ESO	European Southern Obs	-29.3	289.3			+++++++	FEB 23 00:46 - FEB 23 01:26	PneRne
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn

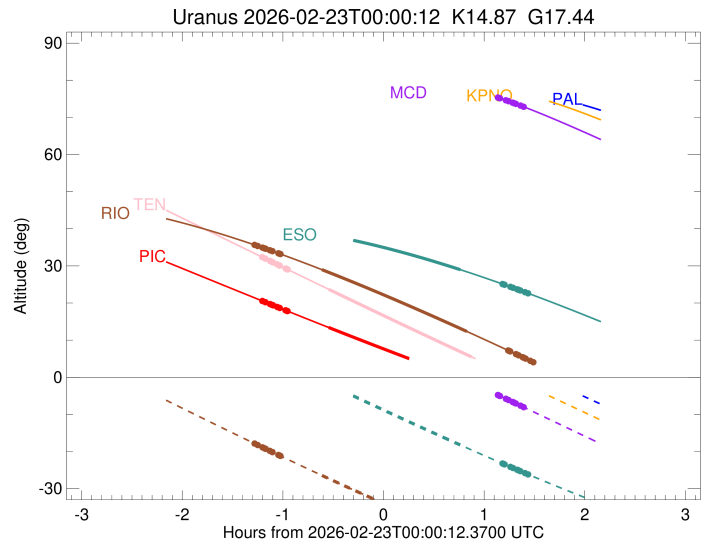
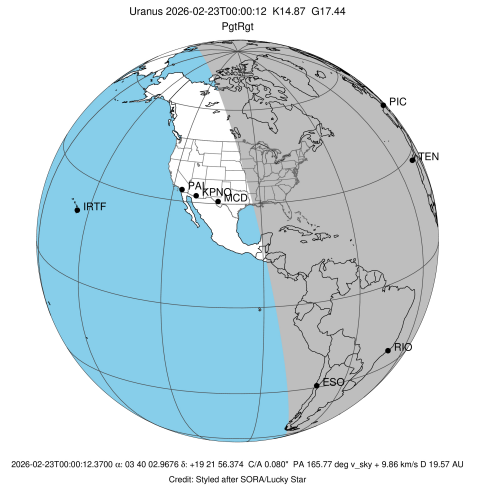


target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-23T00:09:28.010
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : PIC
 Location : Pic du Midi
 Latitude (deg) : 42.93656
 E. Longitude (deg) : 0.14231
 Altitude (km) : 2.890
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561
 ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.573
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 14.79
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.296
 C/A sky separation (km) : 4202.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



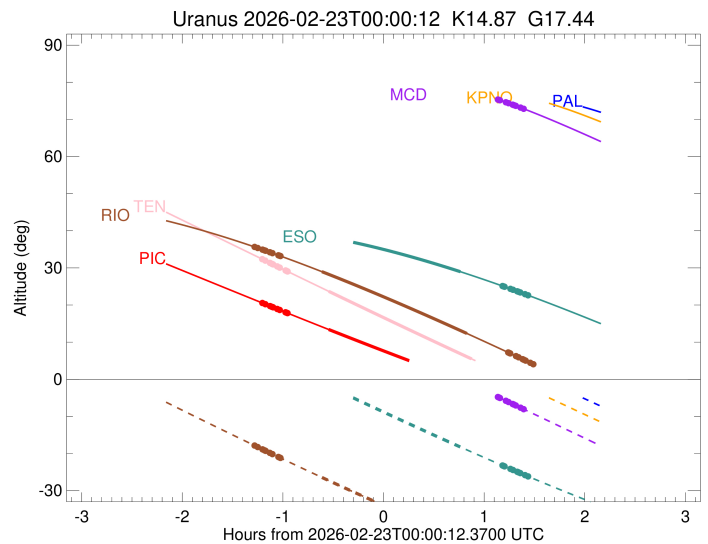
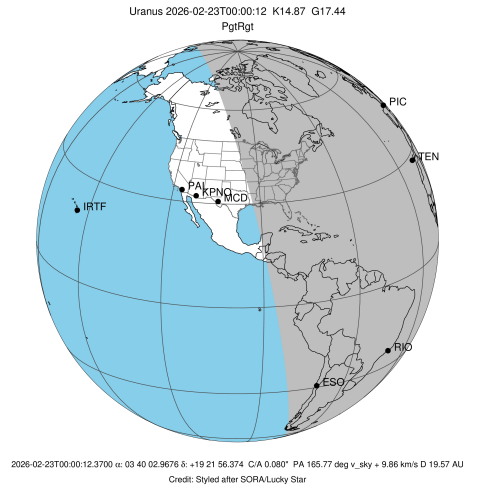
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-02-22T22:48:22.525		20.48	-52.35	50921.44	-10.35		
lambda	I	2026-02-22T22:49:48.955		20.21	-52.51	50026.71	-10.35		
delta	I	2026-02-22T22:52:35.691		19.71	-52.79	48300.35	-10.35		
gamma	I	2026-02-22T22:53:41.218		19.51	-52.91	47621.80	-10.36		
eta	I	2026-02-22T22:54:24.253		19.38	-52.98	47176.12	-10.36		
beta	I	2026-02-22T22:56:52.576		18.93	-53.22	45641.28	-10.36		
alpha	I	2026-02-22T22:58:24.476		18.65	-53.37	44684.62	-10.36		
4	I	2026-02-22T23:01:52.863		18.02	-53.70	42530.37	-10.36		
5	I	2026-02-22T23:02:19.750		17.94	-53.74	42260.17	-10.36		
6	I	2026-02-22T23:02:57.731		17.83	-53.80	41870.08	-10.36		
Uranus	I	2026-02-22T23:27:27.716		13.42	-55.70	25183.47		-18.50	-19.31
Uranus	E	2026-02-23T00:50:57.948		-0.90x	-56.11	25073.31		21.23	22.14
6	E	2026-02-23T01:14:25.498		-4.64x	-54.49	41810.39	10.61		
5	E	2026-02-23T01:15:01.654		-4.73x	-54.44	42195.13	10.61		
4	E	2026-02-23T01:15:41.392		-4.84x	-54.39	42607.48	10.61		
alpha	E	2026-02-23T01:19:03.954		-5.36x	-54.09	44751.74	10.63		
beta	E	2026-02-23T01:20:30.889		-5.59x	-53.97	45681.22	10.63		
eta	E	2026-02-23T01:22:51.574		-5.95x	-53.75	47176.12	10.64		
gamma	E	2026-02-23T01:23:34.247		-6.06x	-53.69	47630.16	10.64		
delta	E	2026-02-23T01:24:37.220		-6.22x	-53.59	48300.35	10.64		
lambda	E	2026-02-23T01:27:19.347		-6.63x	-53.33	50026.71	10.65		
epsilon	E	2026-02-23T01:29:20.146		-6.93x	-53.13	51313.82	10.65		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-22T23:59:43.940
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : MCD
 Location : McDonald Obs. 2.7m
 Latitude (deg) : 30.67158
 E. Longitude (deg) : 255.97844
 Altitude (km) : 2.075
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561
 ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.572
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 14.26
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.173
 C/A sky separation (km) : 2458.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



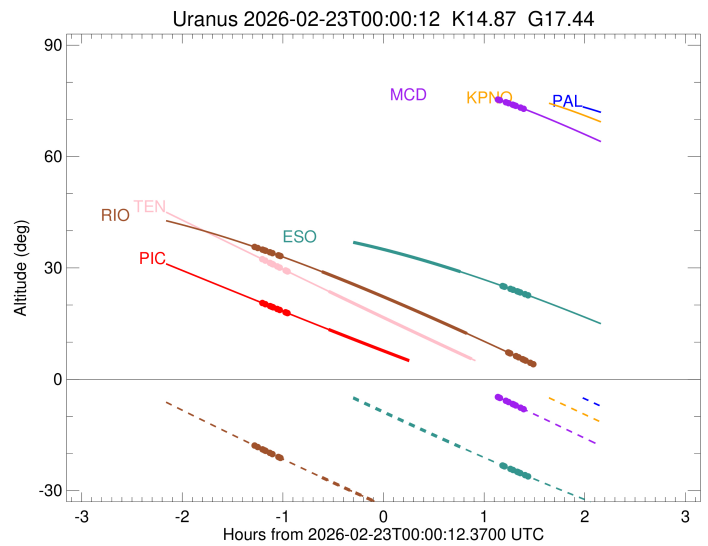
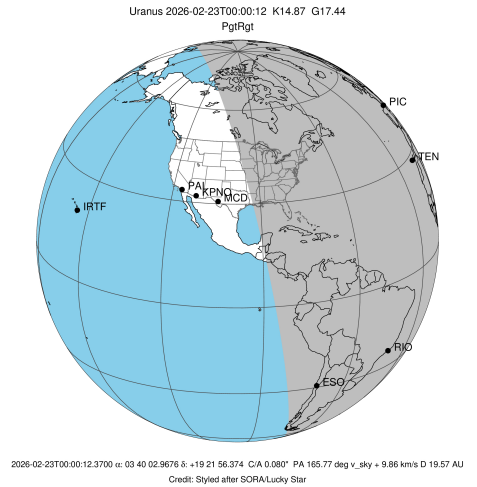
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-02-22T22:35:36.502		62.70	26.13x	50925.19	-10.10		
lambda	I	2026-02-22T22:37:05.467		63.00	25.86x	50026.71	-10.10		
delta	I	2026-02-22T22:39:56.441		63.59	25.33x	48300.35	-10.10		
gamma	I	2026-02-22T22:41:03.651		63.81	25.12x	47621.84	-10.09		
eta	I	2026-02-22T22:41:47.807		63.96	24.98x	47176.12	-10.09		
beta	I	2026-02-22T22:44:20.018		64.48	24.51x	45641.23	-10.09		
alpha	I	2026-02-22T22:45:54.344		64.80	24.21x	44684.63	-10.09		
4	I	2026-02-22T22:49:28.324		65.52	23.54x	42530.73	-10.09		
5	I	2026-02-22T22:49:55.851		65.61	23.45x	42261.58	-10.09		
6	I	2026-02-22T22:50:35.023		65.75	23.33x	41869.56	-10.09		
Uranus	I	2026-02-22T23:15:41.114		70.62	18.47x	25164.27		-19.00	-19.83
Uranus	E	2026-02-23T00:43:39.161		78.24	0.47x	25095.18		20.71	21.60
6	E	2026-02-23T01:08:19.774		75.36	-4.76x	41808.35	10.10		
5	E	2026-02-23T01:08:58.579		75.27	-4.90x	42199.60	10.09		
4	E	2026-02-23T01:09:40.060		75.16	-5.04	42609.12	10.09		
alpha	E	2026-02-23T01:13:12.952		74.61	-5.80	44752.09	10.10		
beta	E	2026-02-23T01:14:44.436		74.37	-6.12	45681.23	10.10		
eta	E	2026-02-23T01:17:12.560		73.97	-6.65	47176.12	10.10		
gamma	E	2026-02-23T01:17:57.521		73.85	-6.81	47630.36	10.10		
delta	E	2026-02-23T01:19:03.830		73.66	-7.05	48300.35	10.10		
lambda	E	2026-02-23T01:21:54.652		73.18	-7.66	50026.71	10.11		
epsilon	E	2026-02-23T01:24:03.994		72.81	-8.12	51334.23	10.11		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-23T00:10:24.280
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561
 ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.573
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 14.99
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.162
 C/A sky separation (km) : 2293.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



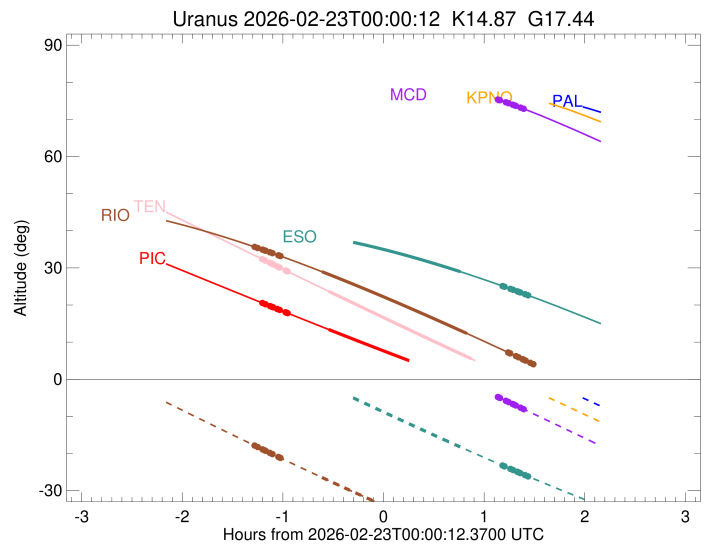
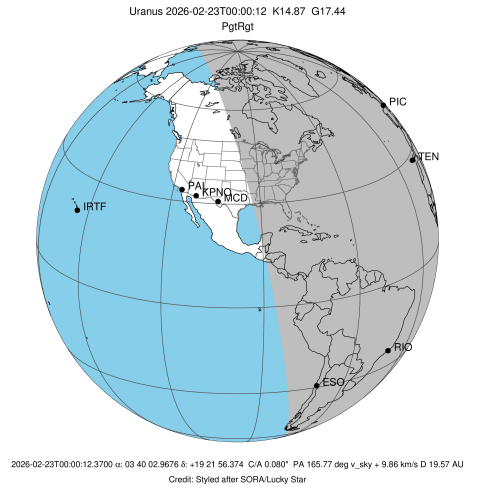
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-02-22T22:48:15.820		32.28	-50.16	50933.94	-10.24		
lambda	I	2026-02-22T22:49:44.374		31.96	-50.47	50026.71	-10.25		
delta	I	2026-02-22T22:52:32.826		31.34	-51.05	48300.35	-10.25		
gamma	I	2026-02-22T22:53:39.004		31.10	-51.27	47621.92	-10.25		
eta	I	2026-02-22T22:54:22.483		30.94	-51.42	47176.12	-10.25		
beta	I	2026-02-22T22:56:52.284		30.39	-51.94	45641.17	-10.26		
alpha	I	2026-02-22T22:58:25.043		30.05	-52.25	44684.67	-10.26		
4	I	2026-02-22T23:01:55.366		29.29	-52.97	42531.28	-10.27		
5	I	2026-02-22T23:02:22.287		29.19	-53.06	42263.56	-10.27		
6	I	2026-02-22T23:03:00.980		29.05	-53.19	41868.82	-10.27		
Uranus	I	2026-02-22T23:27:32.447		23.69	-58.05	25151.82		-19.31	-20.16
Uranus	E	2026-02-23T00:52:46.756		5.48	-70.72	25090.60		20.82	21.71
6	E	2026-02-23T01:16:22.933	0.59x	-71.74	41808.92	10.56			
5	E	2026-02-23T01:16:59.799	0.46x	-71.74	42198.32	10.56			
4	E	2026-02-23T01:17:39.519	0.33x	-71.75	42608.66	10.56			
alpha	E	2026-02-23T01:21:02.925	-0.37x	-71.75	44752.00	10.57			
beta	E	2026-02-23T01:22:30.282	-0.66x	-71.74	45681.23	10.58			
eta	E	2026-02-23T01:24:51.681	-1.14x	-71.71	47176.12	10.58			
gamma	E	2026-02-23T01:25:34.586	-1.29x	-71.69	47630.30	10.59			
delta	E	2026-02-23T01:26:37.869	-1.50x	-71.67	48300.35	10.59			
lambda	E	2026-02-23T01:29:20.839	-2.06x	-71.60	50026.71	10.60			
epsilon	E	2026-02-23T01:31:23.557	-2.47x	-71.53	51327.45	10.60			

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-23T00:06:49.310
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : RIO
 Location : Rio de Janeiro
 Latitude (deg) : -22.89506
 E. Longitude (deg) : 316.77708
 Altitude (km) : 0.033
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561
 ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.573
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 15.02
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.239
 C/A sky separation (km) : 3397.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itrff93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-02-22T22:43:40.027		35.60	-17.93	50971.36	-10.07		
lambda	I	2026-02-22T22:45:13.901		35.36	-18.27	50026.71	-10.06		
delta	I	2026-02-22T22:48:05.430		34.91	-18.89	48300.35	-10.07		
gamma	I	2026-02-22T22:49:12.791		34.73	-19.13	47622.29	-10.07		
eta	I	2026-02-22T22:49:57.114		34.62	-19.29	47176.12	-10.07		
beta	I	2026-02-22T22:52:29.720		34.21	-19.84	45641.06	-10.07		
alpha	I	2026-02-22T22:54:04.125		33.96	-20.18	44685.15	-10.07		
4	I	2026-02-22T22:57:38.374		33.38	-20.95	42534.34	-10.07		
5	I	2026-02-22T22:58:05.250		33.31	-21.05	42273.00	-10.08		
6	I	2026-02-22T22:58:45.746		33.20	-21.19	41864.85	-10.07		
Uranus	I	2026-02-22T23:23:28.978		28.98	-26.44	25081.99		-21.02	-21.92
Uranus	E	2026-02-23T00:49:58.165		12.33	-43.32	25171.45		18.81	19.64
6	E	2026-02-23T01:14:28.360		7.24	-47.40	41804.70	10.33		
5	E	2026-02-23T01:15:07.750		7.10	-47.50	42208.72	10.34		
4	E	2026-02-23T01:15:47.577		6.96	-47.61	42611.87	10.34		
alpha	E	2026-02-23T01:19:15.025		6.23	-48.14	44752.42	10.35		
beta	E	2026-02-23T01:20:44.286		5.92	-48.37	45681.04	10.35		
eta	E	2026-02-23T01:23:08.789		5.41	-48.73	47176.12	10.36		
gamma	E	2026-02-23T01:23:52.666		5.26	-48.84	47630.70	10.36		
delta	E	2026-02-23T01:24:57.283		5.03	-49.00	48300.35	10.36		
lambda	E	2026-02-23T01:27:43.775		4.44x	-49.41	50026.71	10.37		
epsilon	E	2026-02-23T01:29:53.127		3.98x	-49.72	51368.92	10.38		

target : Uranus
 target radius (km) : 25559.00
 C/A epoch : 2026-02-23T00:02:30.460
 Event type : PgtRgt
 : Uranus occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Observer code : ESO
 Location : European Southern Obs. (3.6m)
 Latitude (deg) : -29.26097
 E. Longitude (deg) : 289.26831
 Altitude (km) : 2.400
 Gaia source ID : 57087056031232384
 2Mass ID (if available) : 03400296+1921561
 ICRS Star Coord at Epoch: 03h 40m 02.96765s +19:21:56.37443s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.872
 G magnitude : 17.440
 RP magnitude : 16.711
 BP magnitude : 18.006
 DUPflag : 0
 Distance (au) : 19.572
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 9.85
 Sun-Target sep (deg) : 83.24
 Sun-Moon sep (deg) : 14.76
 B (ring opening deg) : 68.32
 PA of pole (deg) : -82.36
 Pole direction: RA (deg): 257.31100
 Dec (deg): -15.17500
 C/A sky separation (") : 0.278
 C/A sky separation (km) : 3949.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 ura111.bsp
 IAU_URANUS_for_RINGFIT.tpc
 vgr2.ura111.bsp
 ura161.bsp
 vgr2.ura161.bsp
 peph.ura160.bsp
 earthstns_itr93_040916.bsp
 earth_720101_070426.bpc
 earth_200101_990628_predict.bpc
 pg3f0000r.bsp
 pg490000r.bsp
 naif0012.tls
 earth_flat_IAU.spk



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
epsilon	I	2026-02-22T22:38:48.196		41.06	8.60x	50972.41	-10.02		
lambda	I	2026-02-22T22:40:22.663		41.01	8.26x	50026.71	-10.01		
delta	I	2026-02-22T22:43:15.126		40.91	7.63x	48300.35	-10.01		
gamma	I	2026-02-22T22:44:22.868		40.87	7.39x	47622.30	-10.01		
eta	I	2026-02-22T22:45:07.448		40.84	7.23x	47176.12	-10.01		
beta	I	2026-02-22T22:47:40.966		40.74	6.67x	45641.06	-10.01		
alpha	I	2026-02-22T22:49:15.954		40.67	6.33x	44685.18	-10.01		
4	I	2026-02-22T22:52:51.598		40.51	5.55x	42534.48	-10.00		
5	I	2026-02-22T22:53:18.635		40.49	5.45x	42273.37	-10.01		
6	I	2026-02-22T22:53:59.452		40.46	5.31x	41864.67	-10.00		
Uranus	I	2026-02-22T23:18:54.763		38.91	-0.06x	25078.98		-21.09	-22.00
Uranus	E	2026-02-23T00:46:05.165		28.97	-18.25	25184.73		18.47	19.28
6	E	2026-02-23T01:11:04.405		25.14	-23.21	41804.13	10.16		
5	E	2026-02-23T01:11:44.737		25.03	-23.34	42210.34	10.16		
4	E	2026-02-23T01:12:25.124		24.92	-23.47	42612.29	10.16		
alpha	E	2026-02-23T01:15:56.121		24.35	-24.15	44752.43	10.17		
beta	E	2026-02-23T01:17:26.946		24.10	-24.44	45680.99	10.17		
eta	E	2026-02-23T01:19:53.990		23.70	-24.92	47176.12	10.18		
gamma	E	2026-02-23T01:20:38.644		23.58	-25.06	47630.76	10.18		
delta	E	2026-02-23T01:21:44.394		23.40	-25.27	48300.35	10.19		
lambda	E	2026-02-23T01:24:33.828		22.93	-25.81	50026.71	10.19		
epsilon	E	2026-02-23T01:26:46.106		22.56	-26.23	51375.35	10.20		